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PROGRESS OF HYDRAULIC CONSTRUCTION IN SIBERIA

/The following report gives data on the progress made on hydraulic construction in Siberia as reported in the Soviet press and periodicals.

Numbers in parentheses refer to appended sources./

Angara River Project

According to a poem published in Ogonek on 14 December 1952, "Angarastroy" /an organization for hydraulic construction on the Angara River/, has already started survey work on the river, employing personnel transferred from the completed Volga Don Canal construction (1)

Izvestiya of 9 January 1953 asserted that the Angara River is a remarkable natural phenomenon, not duplicated anywhere else in the world, and a wonderful source of water power. The river is the only outlet for the waters of Lake Baykal, which is the largest fresh-water reservoir in Eurasia; Lake Baykal's waters, Izvestiya continued, are constantly replenished by 330 rivers. The water power of the Angara River, according to the paper is sufficient to produce over 60 billion kilowatt-hours a year at half the average cost of electric power in the USSR. So great is the quantity of water in the lake that the Angara River would continue flowing as usual for 400 years even if the 330 rivers ceased discharging their waters into the lake, the paper added.(2) According to an article by A. V. Vinter and A. B. Markin in Vestnik Akademii Nauk SSSR, Lake Baykal is 600 kilometers long and has an average width of 60 kilometers. It is an unexcelled regulator of the flow of the Angara River, making it almost invariable throughout the year. Evaporation losses of water in the lake are comparatively small, and the snows on surrounding mountains supply the lake with water at a more or less constant rate all year round.

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In view of the almost constant river flow, the article continued, it will be possible to operate hydroturbines there almost 8,000 hours a year. This ideal condition also eliminates the necessity for building large reservoirs, the article pointed out, the absence of any significant spring floods will reduce the cost of construction considerably, since no protection from them will have to be provided. According to the article, the volume of concrete required for building a GES on the Angara River, with the same capacity as the Dnepr GES, would not exceed 0.5 million cubic meters, i.e., almost 2.5 times less than the concrete at the Dnepr GES. This reduced volume of concreting, the article stated, means it can be done during the summers and eliminate expensive winter work.

The article pointed out that the availability of a cheap and uninterrupted electric power supply in Eastern Siberia predetermines the nature and future locations of the enormous industrial enterprises to be built there. There will be such electric-power consuming industries as aluminum, it stated, since up to 18,000 kilowatt-hours are required to produce one ton of aluminum. It predicted that new centers of chemical and ore processing industries will be built, large enterprises will produce chemical fertilizers, and others will utilize agricultural raw materials for their production. The Angara power system, it added, will make the electrification of railroads and agriculture possible. The article concluded that at present it is difficult to visualize the extent of future industrial development in the new regions in Siberia between the Urals and the Pacific Ocean, but that 50 to 100 percent of the basic natural resources of the USSR are located there.(3)

Ust' Kamenogorskaya GES

According to a 1949 Gidroelektrostantsii Stroitel'stvo report, the Ust' Kamenogorskaya GES, which was under construction, is located near the old Russian town of Ust' Kamenogorsk founded in 1720 by Peter the Great, at a point where the Irtysh River passes through a narrow rocky gorge. After the GES is completed, the report continued, it will supply electric power to the mines in the Altay Mountains, as well as to the power-consuming polymetallic industries which are to be developed in the region.(4)

On 1 July 1952, Kazakhstanskaya Pravda stated that construction work had progressed to such an extent that the GES was expected to be in operation by autumn 1952.(5)

The same newspaper on 21 October 1952 reported that the last few cubic meters of concrete were being placed into the dam of the GES. According to the same report, on 17 October the damming of the river was completed and the filling up of the reservoir with water began, the assembly and installation of hydroturbines and generators was under way.(6)

On 16 December 1952, Kazakhstanskaya Pravda announced that the first aggregate of the GES had undergone a successful trial run.(7)

Vinter and Markin, in the November 1952 article referred to above, described the hydraulic construction on the Irtysh River as follows: In Kazakhstan on the upper Irtysh, the Ust' Kamenogorskaya GES is about to be put into operation and the construction of the other, Bukhtarminskaya GES will be started in 1953. Both these GES will supply cheap electric power to exploit enormous deposits of polymetallic ores in the Altay Mountains.

The article continued: The upper Irtysh is very suitable for hydroelectric construction along the 430 kilometer stretch between Lake Zaysan and Ust' Kamenogorsk. The Irtysh River has a uniform water regimen throughout the year, as well as over a period of many years. It is fed by melting snows and

glaciers of the Altay Range and flows through enormous Lake Zaysan. The drop of the river between the lake and Ust' Kamenogorsk is 100 meters, whereas between the estuary of the Bukhtarma River, a large tributary of the Irtysh, and Ust' Kamenogorsk the drop is 50 centimeters per kilometer. Navigable locks are to be built at both GES; the dam of the Bukhtarminskaya GES will form a large reservoir which will render the flow of the river completely uniform. These exceptionally favorable conditions will permit the cheap production of electric power which will cost no more than one kopek per kilowatt-hour.(3)

SOURCES

1. Moscow, Ogonek, No 51, 14 Dec 52

2. Moscow, Izvestiya, 9 Jan 53

3. Moscow, Vestnik Akademii Nauk SSSR, No 11, Nov 52

4. Moscow, Gidrotekhnicheskoye Stroitel'stvo, No 4, Apr 49

5. Alma-Ata, Kazakhstanskaya Pravda, 1 Jul 52

6. Ibid., 21 Oct 52

7. Ibid., 16 Dec 52

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